

SEQUENCE LISTING

<110> Wood, Kenneth

Finer, Jeffrey

Beraud, Christophe

Mak, John

Sakowicz, Roman

<120> Methods of screening for modulators of  
cell proliferation and methods of diagnosing cell  
proliferation states

<130> CYTOP033

<140> US 09/428,156

<141> 1999-10-27

<160> 10

<170> FastSEQ for Windows Version 4.0

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<212> DNA

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 Arg Lys Ala Ser Ala His Ser Ile Val Glu Cys Asp Pro Val Arg Lys  
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 Glu Val Ser Val Arg Thr Gly Gly Leu Ala Asp Lys Ser Ser Arg Lys  
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 Ser Lys Leu Leu Asn Thr Val Glu Glu Thr Thr Lys Asp Val Ser Gly  
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565	570	575
Ala Leu Asp Thr Ile Thr Thr Val Ala Leu Gly Ser Leu Thr Ser Ile		
580	585	590
Pro Glu Asn Val Ser Thr His Val Ser Gln Ile Phe Asn Met Ile Leu		
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Lys Glu Gln Ser Leu Ala Ala Glu Ser Lys Thr Val Leu Gln Glu Leu		
610	615	620
Ile Asn Val Leu Lys Thr Asp Leu Leu Ser Ser Leu Glu Met Ile Leu		
625	630	635
Ser Pro Thr Val Val Ser Ile Leu Lys Ile Asn Ser Gln Leu Lys His		
645	650	655
Ile Phe Lys Thr Ser Leu Thr Val Ala Asp Lys Ile Glu Asp Gln Lys		
660	665	670
Lys Arg Asn Ser Asp Gly Phe Leu Ser Ile Leu Cys Asn Asn Leu Glu		
675	680	685
His Glu Leu Gln Glu Asn Thr Ile Cys Ser Leu Val Glu Ser Gln Lys		
690	695	700
Gln Cys Gly Asn Leu Thr Glu Asp Leu Lys Thr Ile Lys Gln Thr His		
705	710	715
Ser Gln Glu Leu Cys Lys Leu Met Asn Trp Thr Glu Arg Phe Cys Ala		
725	730	735
Leu Glu Glu Lys Cys Glu Asn Ile Gln Lys Pro Leu Ser Ser Val Gln		
740	745	750
Glu Asn Ile Gln Gln Lys Ser Lys Asp Ile Val Asn Lys Met Thr Phe		
755	760	765
His Ser Gln Lys Phe Cys Ala Asp Ser Asp Gly Phe Ser Gln Glu Leu		
770	775	780
Arg Asn Phe Asn Gln Glu Gly Thr Lys Leu Val Glu Glu Ser Val Lys		
785	790	795
His Ser Asp Lys Leu Asn Gly Asn Leu Glu Lys Ile Ser Gln Ile Thr		
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Glu Gln Arg Cys Glu Ser Leu Asn Thr Arg Thr Val Tyr Phe Ser Glu		
820	825	830
Gln Trp Val Ser Ser Leu Asn Glu Arg Glu Gln Glu Leu His Asn Leu		
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850	855	860
Glu Lys Ser Asp Gly Arg Lys Ala Ala His Glu Lys Gln His Asn Ile		
865	870	875
Phe Leu Asp Gln Met Thr Ile Asp Glu Asp Lys Leu Ile Ala Gln Asn		
885	890	895
Leu Glu Leu Asn Glu Thr Ile Lys Ile Gly Leu Thr Lys Leu Asn Cys		
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Phe Leu Glu Gln Asp Leu Lys Leu Asp Ile Pro Thr Gly Thr Thr Pro		
915	920	925
Gln Arg Lys Ser Tyr Leu Tyr Pro Ser Thr Leu Val Arg Thr Glu Pro		
930	935	940
Arg Glu His Leu Leu Asp Gln Leu Lys Arg Lys Gln Pro Glu Leu Leu		
945	950	955
Met Met Leu Asn Cys Ser Glu Asn Asn Lys Glu Glu Thr Ile Pro Asp		
965	970	975

Val Asp Val Glu Glu Ala Val Leu Gly Gln Tyr Thr Glu Glu Pro Leu  
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 Ser Gln Glu Pro Ser Val Asp Ala Gly Val Asp Cys Ser Ser Ile Gly  
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 Gly Val Pro Phe Phe Gln His Lys Ser His Gly Lys Asp Lys Glu  
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 Asn Arg Gly Ile Asn Thr Leu Glu Arg Ser Lys Val Glu Glu Thr Thr  
 1025                1030                1035                1040  
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 Glu Val Ser Val Arg Thr Gly Gly Leu Ala Asp Lys Ser Ser Arg Lys  
 50                55                60

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 Val Tyr Arg Ser Val Val Cys Pro Ile Leu Asp Glu Val Ile Met Gly  
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 Phe Thr Met Glu Gly Glu Arg Ser Pro Asn Glu Glu Tyr Thr Trp Glu  
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 Glu Asp Pro Leu Ala Gly Ile Ile Pro Arg Thr Leu His Gln Ile Phe  
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 Lys Ile Gly Lys Leu Asn Leu Val Asp Leu Ala Gly Ser Glu Asn Ile  
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 Gly Arg Ser Gly Ala Val Asp Lys Arg Ala Arg Glu Ala Gly Asn Ile  
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 Asn Gln Ser Leu Leu Thr Leu Gly Arg Val Ile Thr Ala Leu Val Glu  
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 Arg Thr Pro His Val Pro Tyr Arg Glu Ser Lys Leu Thr Arg Ile Leu  
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 Gln Asp Ser Leu Gly Gly Arg Thr Arg Thr Ser Ile Ile Ala Thr Ile  
       325            330            335  
 Ser Pro Ala Ser Leu Asn Leu Glu Glu Thr Leu Ser Thr Leu Glu Tyr  
       340            345            350  
 Ala His Arg Ala Lys Asn Ile Leu Leu Glu Gln Thr Glu Gly Lys Leu  
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 Thr Tyr Thr Phe Asp Met Val Phe Gly Ala Ser Thr Lys Gin Ile Asp  
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 Tyr Asn Cys Thr Ile Phe Ala Tyr Gly Gin Thr Gly Thr Gly Lys Thr  
 100 105 110  
 Phe Thr Met Glu Gly Glu Arg Ser Pro Asn Glu Glu Tyr Thr Trp Glu  
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 Glu Asp Pro Leu Ala Gly Ile Ile Pro Arg Thr Leu His Gin Ile Phe  
 130 135 140  
 Glu Lys Leu Thr Asp Asn Gly Thr Glu Phe Ser Val Lys Val Ser Leu  
 145 150 155 160  
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 165 170 175  
 Asp Val Ser Glu Arg Leu Gln Met Phe Asp Asp Pro Arg Asn Lys Arg  
 180 185 190  
 Gly Val Ile Ile Lys Gly Leu Glu Glu Ile Thr Val His Asn Lys Asp  
 195 200 205  
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325	330	335	
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Ala His Arg Ala Lys Asn Ile Leu Asn Lys Pro Glu Val Asn Gln Lys			
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Leu Thr Lys Ala Leu Ile Lys Glu Tyr Thr Glu Glu Ile Glu Arg			
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Leu Asn Arg Val Thr Glu Leu Phe Met Asp Asn Lys Asn Glu Leu Asp			
435	440	445	
Gln Cys Lys Ser Asp Leu Gln Asn Lys Thr Gln Glu Leu Glu Thr Thr			
450	455	460	
Gln Lys His Leu Gly Glu Thr Lys Leu Gly Leu Val Lys Glu Glu Tyr			
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Ile Thr Ser Ala Leu Glu Ser Thr Glu Glu Lys Leu Glu Gln Thr Glu			
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 35 40 45  
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 Thr Tyr Thr Phe Asp Met Val Phe Gly Ala Ser Thr Lys Gln Ile Asp  
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 100 105 110  
 Phe Thr Met Glu Gly Glu Arg Ser Pro Asn Glu Glu Tyr Thr Trp Glu  
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 Glu Lys Leu Thr Asp Asn Gly Thr Glu Phe Ser Val Lys Val Ser Leu  
 145 150 155 160  
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 165 170 175  
 Asp Val Ser Glu Arg Leu Gln Met Phe Asp Asp Pro Arg Asn Lys Arg  
 180 185 190  
 Gly Val Ile Ile Lys Gly Leu Glu Glu Ile Thr Val His Asn Lys Asp  
 195 200 205  
 Glu Val Tyr Gly Ile Leu Glu Lys Gly Ala Ala Lys Arg Thr Thr Ala  
 210 215 220  
 Ala Thr Leu Met Asn Ala Tyr Ser Ser Arg Ser His Ser Val Phe Ser

225	230	235	240												
Val	Thr	Ile	His	Met	Lys	Glu	Thr	Thr	Ile	Asp	Gly	Glu	Glu	Leu	Val
245	250	255													
Lys	Ile	Gly	Lys	Leu	Asn	Leu	Val	Asp	Leu	Ala	Gly	Ser	Glu	Asn	Ile
260	265	270													
Gly	Arg	Ser	Gly	Ala	Val	Asp	Lys	Arg	Ala	Arg	Glu	Ala	Gly	Asn	Ile
275	280	285													
Asn	Gln	Ser	Leu	Leu	Thr	Leu	Gly	Arg	Val	Ile	Thr	Ala	Leu	Val	Glu
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Arg	Thr	Pro	His	Val	Pro	Tyr	Arg	Glu	Ser	Lys	Leu	Thr	Arg	Ile	Leu
305	310	315	320												
Gln	Asp	Ser	Leu	Gly	Gly	Arg	Thr	Arg	Thr	Ser	Ile	Ile	Ala	Thr	Ile
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Ser	Pro	Ala	Ser	Leu	Asn	Leu	Glu	Glu	Thr	Leu	Ser	Thr	Leu	Glu	Tyr
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Ala	His	Arg	Ala	Lys	Asn	Ile	Leu	Asn	Lys	Pro	Glu	Val	Asn	Gln	Lys
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Leu	Thr	Lys	Lys	Ala	Leu	Ile	Lys	Glu	Tyr	Thr	Glu	Glu	Ile	Glu	Arg
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Leu	Lys	Arg	Asp	Leu	Ala	Ala	Arg	Glu	Lys	Asn	Gly	Val	Tyr	Ile	
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Ser	Glu	Glu	Asn	Phe	Arg	Val	Met	Ser	Gly	Lys	Leu	Thr	Val	Gln	Glu
405	410	415													
Glu	Gln	Ile	Val	Glu	Leu	Ile	Lys	Ile	Gly	Ala	Val	Glu	Glu		
420	425	430													
Leu	Asn	Arg	Val	Thr	Glu	Leu	Phe	Met	Asp	Asn	Lys	Asn	Glu	Leu	Asp
435	440	445													
Gln	Cys	Lys	Ser	Asp	Leu	Gln	Asn	Lys	Thr	Gln	Glu	Leu	Glu	Thr	Thr
450	455	460													
Gln	Lys	His	Leu	Gly	Glu	Thr	Lys	Leu	Gly	Leu	Val	Lys	Glu	Tyr	
465	470	475	480												
Ile	Thr	Ser	Ala	Leu	Glu	Ser	Thr	Glu	Glu	Lys	Leu	His	Asp	Ala	Ala
485	490	495													
Ser	Lys	Leu	Leu	Asn	Thr	Val	Glu	Glu	Thr	Thr	Lys	Asp	Val	Ser	Gly
500	505	510													
Leu	His	Ser	Lys	Leu	Asp	Arg	Lys	Lys	Ala	Val	Asp	Gln	His	Asn	Ala
515	520	525													
Glu	Ala	Gln	Asp	Ile	Phe	Gly	Lys	Asn	Leu	Asn	Ser	Leu	Phe	Asn	Asn
530	535	540													
Met	Glu	Glu	Leu	Ile	Lys	Asp	Gly	Ser	Leu	Glu	Gln	Thr	Glu	Gly	Lys
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Leu	Ile	Ser	Glu	Glu	Asp	Leu	Ile	Glu	His						
565	570	575													

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 35 40 45  
 Glu Val Ser Val Arg Thr Gly Gly Leu Ala Asp Lys Ser Ser Arg Lys  
 50 55 60  
 Thr Tyr Thr Phe Asp Met Val Phe Gly Ala Ser Thr Lys Gln Ile Asp  
 65 70 75 80  
 Val Tyr Arg Ser Val Val Cys Pro Ile Leu Asp Glu Val Ile Met Gly  
 85 90 95  
 Tyr Asn Cys Thr Ile Phe Ala Tyr Gly Gln Thr Gly Thr Gly Lys Thr  
 100 105 110  
 Phe Thr Met Glu Gly Glu Arg Ser Pro Asn Glu Glu Tyr Thr Trp Glu  
 115 120 125  
 Glu Asp Pro Leu Ala Gly Ile Ile Pro Arg Thr Leu His Gln Ile Phe  
 130 135 140  
 Glu Lys Leu Thr Asp Asn Gly Thr Glu Phe Ser Val Lys Val Ser Leu  
 145 150 155 160  
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 165 170 175  
 Asp Val Ser Glu Arg Leu Gln Met Phe Asp Asp Pro Arg Asn Lys Arg  
 180 185 190  
 Gly Val Ile Ile Lys Gly Leu Glu Glu Ile Thr Val His Asn Lys Asp  
 195 200 205  
 Glu Val Tyr Gly Ile Leu Glu Lys Gly Ala Ala Lys Arg Thr Thr Ala  
 210 215 220  
 Ala Thr Leu Met Asn Ala Tyr Ser Ser Arg Ser His Ser Val Phe Ser  
 225 230 235 240  
 Val Thr Ile His Met Lys Glu Thr Thr Ile Asp Gly Glu Glu Leu Val  
 245 250 255  
 Lys Ile Gly Lys Leu Asn Leu Val Asp Leu Ala Gly Ser Glu Asn Ile

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Gly Arg Ser Gly Ala Val Asp Lys Arg Ala Arg Glu Ala Gly Asn Ile  
275            280            285  
Asn Gln Ser Leu Leu Thr Leu Gly Arg Val Ile Thr Ala Leu Val Glu  
290            295            300  
Arg Thr Pro His Val Pro Tyr Arg Glu Ser Lys Leu Thr Arg Ile Leu  
305            310            315            320  
Gln Asp Ser Leu Gly Gly Arg Thr Arg Thr Ser Ile Ile Ala Thr Ile  
325            330            335  
Ser Pro Ala Ser Leu Asn Leu Glu Glu Thr Leu Ser Thr Leu Glu Tyr  
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Ala His Arg Ala Lys Asn Ile Leu Asn Lys Pro Glu Val Asn Gln Lys  
355            360            365